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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/741,684	12/18/2000	Xm Wong	2855/29	6553

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KENYON & KENYON
Suite 600
333 W. San Carlos Street
San Jose, CA 95110-2711

EXAMINER

MILLER, BRIAN E

ART UNIT

PAPER NUMBER

2652

DATE MAILED: 04/08/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

CS

Office Action Summary

Application No.

09/741,684

Applicant(s)

WONG ET AL.

Examiner

Brian E. Miller

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 May 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

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Claims 1-18 are pending.

Information Disclosure Statement

1. The listing of references in the specification (page 1) is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609 A(1) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered.

Specification

2. The abstract of the disclosure is objected to because the language "is described for electrically and mechanically connecting process" is awkward. Correction is required. See MPEP § 608.01(b).

Claim Objections

3. Claim 14 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 14 merely sets forth that the bonding substance is solder, which has already been established in claim 13 from which it depends from.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

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The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 6, 12-18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

(a) claim 6 (and similarly for claims 12 & 18) the phrase “the solder bump” lacks antecedent basis;

(b) claims 14-17, the following phrase lacks antecedent basis: “said bonding substance”.

Furthermore, since claim 13 calls for “solder”, any other recitation of a particular “bonding substance” is considered indefinite;

(c) claim 13, the method should include language such as “comprising the steps of” so as to particularly set forth applicant’s invention;

(d) claim 13, “adheres to a metal pad of said slider” lacks antecedent basis;

(e) claim 13, the phrase “and becomes a solid state” is misdescriptive.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1-5, 7-11, 13-17 are rejected under 35 U.S.C. 102(b) as being anticipated by Albrecht et al (US 5,821,494). Albrecht et al discloses a “disk drive” (see FIG. 1), which includes a bonding pad on a magnetic head terminal 62 (FIG. 12B-12C) which includes a

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bonding substance 60 which is a conductive adhesive solder film polymer (see col. 11, lines 16-25).

With respect to method claim 13, Albrecht et al is considered to encompass the method of: providing a metal pad 64 on an incoming suspension 44; "planting" a solder 122 (FIG. 12B) onto the metal pad; "potting" a slider 42 on the suspension; making a heat treatment (laser beam-see FIG. 12B) so that the solder 60 on the metal pad 64 adheres to a metal pad 62 on the slider, which thereafter cools and becomes a solid electrically conductive connection.

8. Claims 1-5, 7-11, 13-17 are rejected under 35 U.S.C. 102(b) as being anticipated by Ainslie et al (US 4,761,699). As shown in FIGs. 4 & 5, a slider 16 is bonded to a suspension 40; each of which have bonding pads 41, 74, 60, 63 to facilitate proper electrical connection therebetween. The bonding substance includes solder 80, 84 and a conductive adhesion film 74, 76. Ainslie et al is further considered to encompass the method as recited in claim 13.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later

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invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

11. Claims 6, 12 & 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over either Albrecht et al or Ainslie et al.

Albrecht et al or Ainslie et al are silent as to the dimensions, i.e., height and diameter, of the solder bump, however, Albrecht does teach the slider pads to be no larger than 120 um (see col. 11, lines 19-20) which size slider pad would presumably encompass a solder bump having a diameter equal to or approximate to that dimension. Taking this and the knowledge of a skilled artisan into consideration, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have provided solder bumps within the claimed dimensions to the respective teachings of Albrecht et al or Ainslie et al. The motivation would have been: lacking any unobvious or unexpected results, the particular solder bump height and diameter would have been provided through routine experimentation and optimization so as to optimize the electrical connection with minimal height usage, which would have been realized by a skilled artisan.

Conclusion

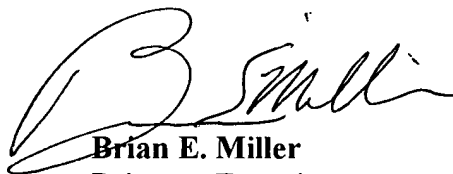
12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure including US Patents to Pattanaik et al (6,046,882), Williams (6,246,548), Arya et al (5,949,618) and Arya et al (5,889,636) all of which are cited to show the use of solder bumps to form an electrical connection on a suspension.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian E. Miller whose telephone number is (703) 308-2850. The examiner can normally be reached on M-F 8am-5:30pm (FF off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hoa T. Nguyen can be reached on (703) 305-9687. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9314 for regular communications and (703) 872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4750.

A handwritten signature in black ink, appearing to read "B. Miller", is positioned above the printed name and title.

Brian E. Miller
Primary Examiner
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bem
April 2, 2002